



High Humidity Weather Resistant In-Ceiling Speakers Technical Brief V2 10/6/08

General Description:

Boston Acoustics Weather-Resistant Custom In-Ceiling Speakers are designed for outstanding durability as well as exceptional sonic performance. These weather-resistant speakers can be used in bathrooms and other moist interior locations as well as exterior locations that include some protection from the elements.

No speaker is completely weatherproof. Salt water, driving rains, direct sunlight, and freeze and thaw cycles will degrade all materials over time. Unprotected outdoor locations may cause the speaker to deteriorate more quickly. To ensure protection from the elements, speaker cones are made of polypropylene and surrounds are made of rubber. The woofers are attached with coated steel fasteners and coated steel speaker grilles that provide additional protection for the drivers. The speaker frames are made of ABS plastic and are UV resistance so they can be used outside near sunlight. For added durability and better performance in these environments, Boston Acoustics weather-resistant models are further protected from the elements by; completely sealing the electrical components including the entire crossover board in a special conformal coating; using waterproof switches and using a moisture-resistant seal between the tweeter post and the voice coil.

Weather Resistant Features:

Tweeter – The tweeters HSi H460T2 are made of polypropylene material which is highly resistant to both temperature and moisture. The soft dome Kortec® tweeters on the VSi H470T2 are covered in a coating that is highly resistant to temperatures and shed water very easily and it is highly moisture resistant.

Tweeter Post and Woofer Voice Coil – The tweeters on the Boston Acoustics High Humidity models are coaxial mounted over the woofer voice coil. Boston designed a special post collar that completely shields the voice coil from the intrusion of moisture. The collar is attached to the woofer cone and slides smooth on the tweeter mounting post.

Woofer Cone – The HSi H460T2 use a coated fiber material which is highly resistant to both temperature and moisture. The polypropylene woofer on the VSi H470T2 is highly resistant to temperatures and shed water very easily and it is highly moisture resistant.

Woofer Surrounds -- The surround is made of water-proof butyl rubber material that extends to the edge of the speaker frame for added protection.



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Grille – For all of Boston Acoustics are produced out of rustproof aluminum and are painted with a powder coat for additional protection against corrosion and salt. The speaker grilles can be painted.

Hardware – All of the hardware on these models are either made of rust resistant stainless steel or are power coated to resist rust and corrosion.

Switches – The switch located on the front of the VSi H470T2 is a waterproof design and is additionally protected with a soft rubber boot.

Crossover Board and Components – The entire crossover board and all of the components is sprayed under pressure with a conformal coating that is highly resistant to moisture and adds significant life to the components over non protected surfaces.

Speaker Frame – The speaker frame is made out of a high impact ABS plastic that is UV protected to limit extends the life of the material and limit the possibility of discoloring caused by exposure to the sun. The speaker frames can be painted.

Testing:

Boston Acoustics High Humidity models go through an exhaustive life test that submits the speakers to many years exposure to the elements. The loudspeakers are designed to pass the internationally recognized IEC529 and Mil Spec 810. These tests simulate the approximate climatic conditions and provide an indication of the degrees of weather resistance. Boston Acoustics further submits these models to long term in use testing through out the country.

Mil Spec 810:

Salt Spray -- This tests a speaker's resistance to the effects of an "aqueous salt atmosphere". It also gives a good indication of resistance to rusting. It consists of 48 hours continuous spray consisting of 5% salt solution.

Humidity -- This is to indicate a speakers resistance to a warm humid atmosphere such as you may find in a sauna or outdoors. 48 hours of cycling. Starts at 100% humidity @ 27 degrees C; goes to 95% @ 35 degrees and goes back to 100% at 27 degrees C.



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Solar Radiation -- To determine the effects of being out in the sun, such as yellowing or chalking. 48 hours of very intense UV (1120W/sq m). These 48 hours are supposed to simulate about 1 year of being out in the sun.

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Low Temperature -- According to the Mil Spec document, this simulates acceptability in a mild climate such as "coastal Europe and southeast Australia". This cycles from -6 degrees C to -19 degrees C (21F to -2F) for 48 hours.

High Temperature -- According to the Mil Spec document, this simulates acceptability in a Hot climate such as "North Africa, the Middle East, Pakistan, and India, southwestern US and northern Mexico". This cycles from 32 C to 49C (90F to 120F) for 48 hours.

IEC 529 IP Ratings:

Boston Acoustics High Humidity models are tested against the IEC529 IP rating. This is a standard rating in which to pass the speaker must function properly at the conclusion of the test. These speakers must meet all of the frequency response and power handling specifications as listed. Boston tests these speakers to an IP X5 rating.

Degrees of Protection Against Water

(tests implemented using fresh water)

IP X0 - Not Protected

IP X1 - Protected against vertically falling water drops; drops have no harmful effects.

IP X2 - Protected against vertically falling water drops when enclosure is tilted up at a 15° angle; drops have no harmful effects.

IP X3 - Protected against water sprayed at up to a 60° angle; water has no harmful effects.

IP X4 - Protected against splashing water from any direction; water has no harmful effects.

IP X5 - Protected against water jets from any direction; water has no harmful effects.



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Boston Acoustics loudspeakers have been exceeding the expectations of serious music listeners for over 25 years. With advanced engineering, innovative design and high quality manufacturing, our High Humidity speakers embody everything it means to be from Boston.

Boston Acoustics maintains an ongoing program of product improvement. Speakers are under constant testing and quality control auditing to ensure that they always meet or exceed our published specifications. If you have any questions please e-mail our Product/Technical Support staff at support@bostona.com

These models offer a limited warranty to the original purchaser purchased from an authorized Boston Acoustics dealer, including authorized internet partners. This warranty protects against defects in materials or workmanship that occur in normal use of the Boston Acoustics product for 5 years and will be repaired without charge for parts and labor. If product cannot be repaired, it will be replaced with a comparable product or (at Boston Acoustics' discretion) a refund of the current retail price of the product. It is the customers' responsibility to use the unit according to the instructions supplied, to provide safe and secure transportation to an authorized Boston Acoustics service representative, and to present proof of purchase in the form of the original sales receipt to establish warranty coverage. The customers' sales receipt should note the model, serial number and date of purchase from an authorized Boston Acoustics dealer.